

What is claimed is:

1 1. A system for analysis or synthesis of materials, comprising:
2 a first physical unit, comprising a mounting region for receiving a microfluidic
3 device;
4 at least one second physical unit spatially separated from the first physical unit
5 and comprising a material transport system that includes at least a first interface component;
6 wherein the first physical unit and second physical unit are oriented with
7 respect to each other whereby the material transport system provides a potential to the
8 microfluidic device through the first interface component to transport material through the
9 microfluidic device; and
10 wherein the first interface component is removable from the second physical
11 unit.

1 2. The system of claim 1, further comprising a fluid supply system
2 disposed within the second physical unit, wherein the fluid supply system is oriented within
3 the second physical unit to provide at least one fluid of the microfluidic device in the
4 mounting region of the first physical unit.

1 3. The system of claim 2, wherein the first interface component and the
2 fluid supply system comprise at least one common conduit disposed in the second physical
3 unit, the at least one conduit providing both a potential for moving material and at least a first
4 fluid to the microfluidic device.

1 4. The system of claim 1, further comprising a control unit operably
2 coupled to the first interface component for controlling application of the potential to the
3 microfluidic device.

1 5. The system of claim 3, further comprising a control unit operably
2 coupled to the fluid supply system, for controlling supply of fluid to the microfluidic device.

1 6. The system of claim 1, wherein the first interface component
2 comprises a sensor for measuring an electrical voltage within the microfluidic device.

1 7. The system of claim 1, further comprising at least a second interface
2 component, the second interface component providing at least one of potential and fluid to
3 the microfluidic device.

1 8. The system of claim 7, wherein the second interface component is
2 removably attached to the second physical unit.

1 9. The system of claim 1, wherein the first interface component is
2 mounted on the second physical unit by a bayonet fitting.

1 10. The system of claim 1, wherein the first physical unit further comprises
2 a detector disposed therein, the detector being positioned to detect signals from the
3 microfluidic device on the mounting region.

1 11. The system of claim 1, wherein the mounting region is open from the
2 top for placing a microfluidic device on the mounting region.